82 E I, II

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கல்விப் பொதுத் தராதரப் பத்திர (சாதாரண தர)ப் பரீட்சை, 2020
General Certificate of Education (Ord. Level) Examination, 2020

ජලජ ජීව සම්පත් තාක්ෂණවේදය **I, II**
நீருயிரினவளத் தொழினுட்பவியல் **I, II**
Aquatic Bioresources Technology I, II

පැය තුනයි
மூன்று மணித்தியாலம்
Three hours

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மேலதிக வாசிப்பு நேரம் - 10 நிமிடங்கள்
Additional Reading Time - 10 minutes

Use **additional reading time** to go through the question paper, select the questions and decide on the questions that you give priority in answering.

Aquatic Bioresources Technology I

Note :
(i) *Answer all questions.*
(ii) *In each of the questions* **1** *to* **40**, *pick one of the alternatives* (1), (2), (3), (4) *which is correct or most appropriate.*
(iii) *Mark a cross* (X) *on the number corresponding to your choice in the answer sheet provided.*
(iv) *Further instructions are given on the back of the answer sheet. Follow them carefully.*

1. The highest fish harvest contribution of Sri Lanka is from,
(1) deep sea. (2) coastal sea.
(3) inland water bodies. (4) lagoons.

2. Which province contributes the highest yield to the total inland fish production in Sri Lanka?
(1) Northern (2) North Central (3) Central (4) Eastern

3. A common characteristic of mangrove plants is having,
(1) succulent leaves. (2) papery thin leaves.
(3) deciduous of nature. (4) leaves with sunken stomata.

4. An endemic fish species of Sri Lanka is,
(1) Black Ruby Barb (*Bulath Hapaya*).
(2) Silver Barb (*Thiththaya*).
(3) Mangrove Red Snapper (*Thambalaya*).
(4) Tilapia.

5. Which figure denotes the shape of the caudal fin of shark?

(1) (2) (3) (4)

6. Which is the main natural process that controls the salinity of mangrove ecosystems?
(1) Water current (2) Flood (3) Tide (4) Upwelling

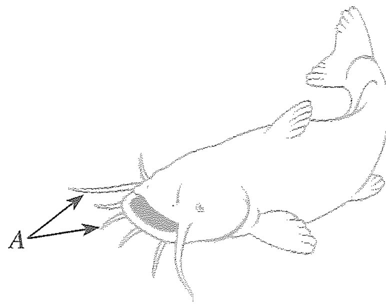
7. An invasive fish species found in Sri Lanka is,
(1) Tilapia. (2) Spotted Snake head (*Lula*).
(3) Giant Gourami. (4) Black Ruby Barb (*Bulath Hapaya*).

[*see page two*

8. Which institute of Sri Lanka is mainly engaged in the collection of information on biodiversity of aquatic ecosystems?
   (1) Department of Agriculture
   (2) Ministry of Environment and Natural Resources
   (3) Ministry of Fisheries and Aquatic Resources Development
   (4) National Aquaculture Development Authority

9. A fish which lives in the salt marsh ecosystem is,
   (1) Climbing Perch (*Kawayya*).
   (2) Spotted Gourami (*Malpulutta*).
   (3) Stingray (*Maduwa*).
   (4) Spotted Scat (*Elaththiya*).

10. The parts that refer *A* of the fish shown in the picture, helps to

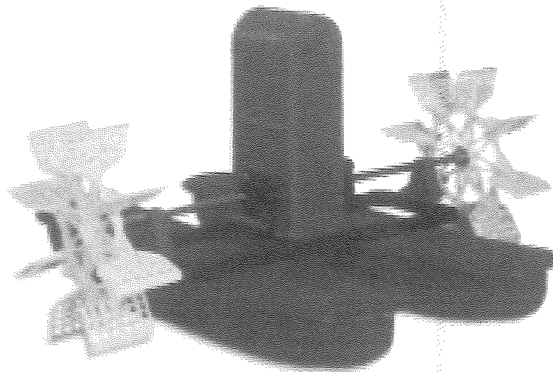


   (1) grip the food. (2) respirate.
   (3) be protected from predators. (4) identify the chemo receptors.

11. The nitrogenous excreta that filter from kidneys of a fish, excretes from the body through the
   (1) mouth. (2) anus.
   (3) urogenital opening. (4) skin.

12. A fish which migrates along with water currents to the favourable climate areas is,
   (1) Skipjack Tuna. (2) Gourami.
   (3) Milkfish (*Wekkaya*). (4) Anchovy.

13. The appliance shown in the diagram is found in a prawn pond. The main function of the appliance is,

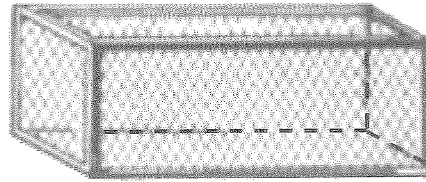


   (1) removing of suspended particles. (2) aerating of water.
   (3) removing of excess water. (4) mixing of newly added water.

14. A disease condition was observed of several ornamental fish in a tank. The symptoms of the disease disappeared when they were immersed in salt water for few minutes. The causative agent of this disease would be,
   (1) a virus. (2) a fungus. (3) a parasite. (4) a bacteria.

[see page three

15. The cage shown in the diagram is used to grow food fish. The statements given below are presented as the factors to be considered when selecting a suitable site for installing this structure.



A – Easily accessible site for harvesting
B – Still water site
C – Water depth is over one meter

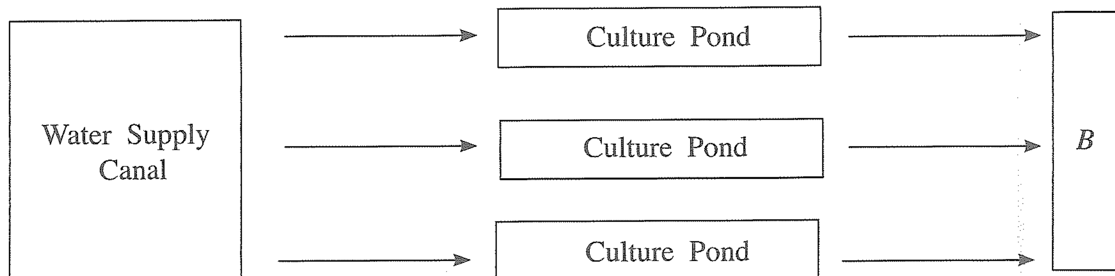
From the above the correct statement/statements is/are,

(1) A only. (2) A and B only.
(3) A and C only. (4) all A, B and C.

16. 'Polyculture fish farming' is a culture of fish,

(1) with different feeding habits, together.
(2) with different age groups, together.
(3) in different water bodies at the same time.
(4) with different reproductive patterns, together.

● A rough layout of a prawn farm system is shown in the layout below. Answer the questions No. **17** and **18** based on that.



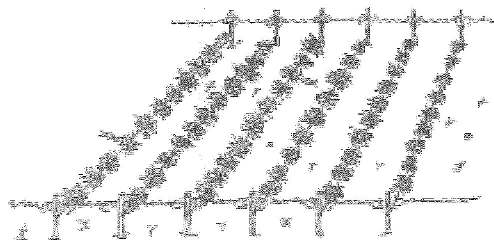
17. In the above layout, *B* is,

(1) breeding pond. (2) storage pond.
(3) water source. (4) polluted water discharge canal.

18. To minimize environment pollution, a component to be included to this system is,

(1) a treatment pond. (2) food and drug storage room.
(3) a security hut. (4) a water storage tank.

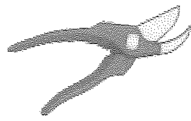
19. A marine aquatic plant which can be grown using the structure of cultivation shown in the figure is,

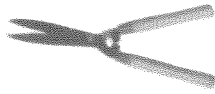


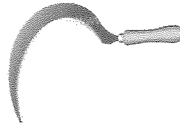
(1) Cabomba. (2) Gracilaria. (3) Ludwigia. (4) Cryptocoryne.

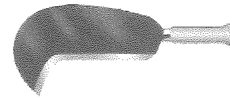
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20. Which of the following tools is more suitable to cut stems of Ludwigia plants for propagation?


(1)


(2)


(3)

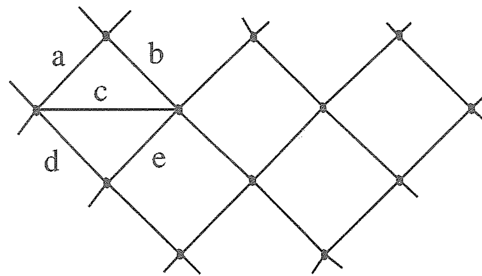

(4)

21. Select the matching pair.
(1) Moina - protozoa
(2) Tubifex - mollusca
(3) Artemia - crustacea
(4) Rotifer - nematoda

22. What is the main purpose of adding wheat flour in the preparation of fish balls?
(1) To increase the number of fish balls produced
(2) To function as a binding agent
(3) To increase nutritional value
(4) To reduce allergic conditions

23. Which tree is more suitable to obtain timber for construction of a 'raft' type fishing craft?
(1) Teak (2) Nadun (3) Kaduru (4) Jak

24. The figure shows a part of a net. Here the 'net eye' is considered roughly as the length of,



(1) a + b. (2) a + c. (3) a + b + c. (4) a + d + e.

25. Which is the most suitable material for the construction of buoys?
(1) Cement (2) Styrofoam (3) Lead (4) Brass

26. Which of the following is the legally banned fishing gear in Sri Lanka?
(1) Purse seine net (2) Trammel net (3) Gill net (4) Push net

27. What is the chemical activity that impacts on the spoilage of fish harvest?
(1) Exposing to sunlight
(2) Rancidification
(3) Microbial contamination
(4) Subjected to crushing

28. Where is the main wholesale fishmarket of Sri Lanka is located?
(1) Jaffna (2) Chilaw (3) Peliyagoda (4) Hambantota

29. When a fish is cut in a fish stall the fish flesh was smeared on the knife. The conclusion can be made that the fish,
(1) got crushed and spoiled.
(2) is a cartilaginous fish.
(3) is in fresh condition.
(4) is carnivorous.

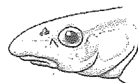
30. What is the fish preservation method based on fermentation?
(1) Smoking.
(2) Preparation of Jadi.
(3) Making Ambulthiyal.
(4) Salting.

[*see page five*

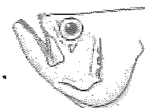
31. Which institute in Sri Lanka is mandated to implement Standards Act on fish products?
(1) The National Aquatic Resources Research and Development Agency
(2) Ministry of Fisheries and Aquatic Resources Development
(3) Ministry of Agriculture
(4) Ministry of Health

32. Select the picture depicting the mouth shape of fish which is more fitting to get floating food.


(1)


(2)


(3)


(4)

33. A Food chain in an aquatic environment is shown below.

Phytoplankton ⟶ Zooplankton ⟶ Small fish ⟶ Big fish

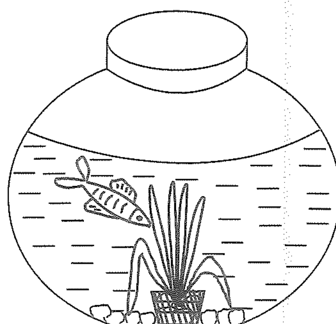
In the above food chain, the highest accumulation of heavy metals would be detected in,
(1) phytoplankton. (2) zooplankton.
(3) small fish. (4) big fish.

34. It was seen that fish in a fish tank come to the water surface and showing labored breathing. What is the option that includes the most suitable measure to avoid this situation?
(1) Exposing to sunlight and aerating.
(2) Exposing to sunlight and reducing the number of fish.
(3) Aerating and reducing the number of fish.
(4) Aerating and increasing the amount of food provided.

35. A few statements made by a student on fish spoilage are given below.
A – The fish having a thick mucus layer will spoil in a higher rate than the fish with a thin mucus layer.
B – Large fish spoils relatively in lower rate than small fish.
C – Flesh of female fish caught soon after laying eggs are spoiled at a lower rate.

Of this the correct statements are
(1) A and B only. (2) A and C only. (3) B and C only. (4) All A, B and C.

36. An ornamental fish is kept in a small glass container as shown in the diagram.
What is the most appropriate way, if you want to add a few more fish into this container?



(1) Excessively growing aquatic plants in the container.
(2) Fill water up to the mouth of the container.
(3) Fixing an aerator.
(4) Keeping the container exposed to sunlight.

[see page six

37. Four factors that influence on sustainability of the fish population in a natural water resource are given as A, B, C and D.

A – Young fish enter to the population
B – Loss of habitats to fish
C – Harvesting fish
D – Mortality of fish due to natural and other reasons

Select the correct response that is important to maintain the stability of the fish population.

(1) $A = C - (B + D)$ (2) $A = B + C + D$ (3) $C = A + B + D$ (4) $A + C = B + D$

38. A feature of the community based management approach established for the advancement of the fisheries industry is,

(1) managing resources through state laws and regulations.
(2) not decentralizing management powers to other stakeholders.
(3) managing the resources combining the state and fishing community.
(4) establishing a coordination between stakeholders in fisheries field and external parties.

39. Some statements about a fishery harbour are given below.

A – A safe place where fishermen anchor their boats
B – Mainly non-motorized boats are anchored
C – Multifunctional infrastructure facilities are available

Of this the correct statements are

(1) A and B only. (2) A and C only. (3) B and C only. (4) all A, B and C.

40. Which state institution is engaged in fish purchasing and marketing?

(1) Ceylon Fisheries Corporation
(2) Ceylon Fishery harbours Corporation
(3) National Aquaculture Development Authority
(4) National Aquatic Resources Research and Development Agency

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நீருயிரினவளத் தொழினுட்பவியல் I, II
Aquatic Bioresources Technology I, II

Aquatic Bioresources Technology II

※ *Answer **five** questions only, selecting the **first** question and **four** others.*

1. (A) The marine fishing industry is one of the sectors that contributes to the Gross Domestic Production (GDP) of Sri Lanka.
   (i) Name **two** maritime zones of Sri Lanka.
   (ii) Mention **two** examples for each fishing craft type given below.
      (a) Non-motorized fishing crafts
      (b) Motorized fishing crafts
   (iii) State **two** processes that can be adopted onboard to prevent fish spoilage caught by fishing vessels.
   (iv) (a) Name **two** marine fish species
      (b) Name **two** fish byproducts
      of the main exports from Sri Lanka.
   (v) (a) State **two** reasons that pollutes marine water sources.
      (b) State **two** adverse effects that arises due to marine water pollution.
   (vi) Name the Authority established to monitor marine water pollution in Sri Lanka.

   (B) Ornamental fish are grown in glass tanks.
   (i) State **four** activities that should follow from selecting a glass tank to filling water to it.
   (ii) Show how to introduce ornamental fish in to the glass tank with the help of diagrams.
   (iii) State **two** ways of increasing oxygen concentration in the glass tank.
   (iv) State **two** steps that should be followed while transporting ornamental fish.

2. The aquatic plants are cultivated in Sri Lanka for different purposes.
   (i) (a) Name **two** fresh water ornamental aquatic plants.
      (b) Name **two** marine aquatic plant products.
   (ii) State **two** asexual propagation methods of aquatic plants and describe **one** of them.
   (iii) Describe the processing of ornamental aquatic plants for marketing.

3. Fish harvest should be handled properly in order to maintain the quality.
   (i) State **four** problems related to the spoilage of fish harvest.
   (ii) (a) State **four** measures to be adopted to ensure the quality of fish in fish stall.
      (b) State **four** properties of good quality fish.
   (iii) Describe how the fishing gears and crafts should be maintained.

[*see page eight*

4. National aquatic ecosystems are subjected to degrade due to various reasons.

(i) Mention **four** natural reasons of degrading aquatic eco systems.

(ii) Name **four** natural aquatic ecosystems and describe the economic importance of **one** of them.

(iii) Describe the importance of conservation of aquatic ecosystems.

5. There is a potential for further development of inland food fish farming in Sri Lanka.

(i) Mention four importances of inland food fish farming.

(ii) Compare the differences between extensive and intensive food fish farming systems.

(iii) Explain the process of artificial breeding of inland fish.

6. Different types of fishing gears are used for harvesting aquatic bio-resources.

(i) Name **two** active and passive net gears for each.

(ii) (a) Which is the most commonly used fishing gear in Sri Lanka?

(b) State **two** advantages and disadvantages each, of using the fishing gear you mentioned in above (ii) (a).

(iii) (a) State **four** traditional fishing gears used in Sri Lanka.

(b) Describe the way of using **one** of those fishing gears you mentioned in above (iii) (a).

7. Maldive fish is a processed fish product.

(i) (a) Name **two** marine fish species used in Maldive fish preparation.

(b) State the principle of Maldive fish production.

(ii) (a) State **four** other fish processing methods in addition to Maldive fish preparation.

(b) Mention **four** advantages of fish preservation.

(iii) Describe the process of Maldive fish preparation.

* * *